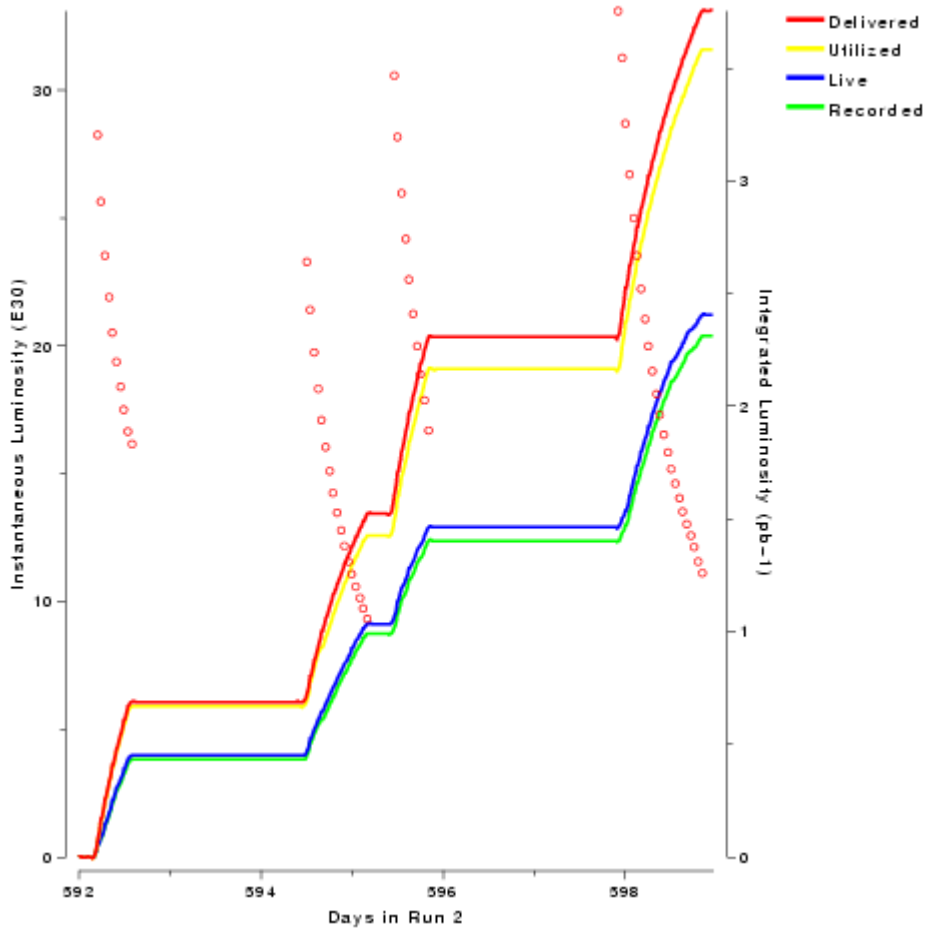
Week of October 14 to October 21 D0 Summary

- Delivered luminosity and operating efficiency
  - Delivered: 3.7pb^{-1}
  - Recorded: 2.4pb^{-1} (~62%)
- Data taking efficiency
  - no major hardware/software problems
  - typical
  - short stores have initial inefficiency
- Issues caused ~1+ hours downtime
  - Silicon readout and HV trips
  - CFT readout and downloads
  - Muon Level 2 trigger hangups
  - Special runs
- Accelerator halo
  - reasonable
- Beam position
  - stable within 0.3mm from the detector center



Data Taking and Triggering

- Running physics trigger list 8.41
  - designed for luminosity in the range (5-50)10^{30}
  - keeping high p_t triggers un-prescaled at any luminosity
- After improving stability in trigger/DAQ over month we are able to set new trigger rates guidelines
  - L1 trigger 0.5-1.1kHz
  - L2 trigger 0.2-0.4kHz
  - L3 trigger (to tape) ~50 Hz
- Total number of events collected over last week
  - 5mln
- Raw event size issue has been resolved
  - down to ~200kb per event from ~330kb

Summary

- D0 experiment is progressing well with physics data taking
  - trigger list 8.41 is running on-line
  - 5 mln events collected last week
- Weekly data taking efficiency over last month is stable at ~62% level
  - quite a few runs have efficiency above 90%
  - no single issue determines overall efficiency
    - many issues each reducing efficiency by "a few %"
    - difficult to resolve
    - detailed plan of resolving most of the issues is under development
- Further increase in off-line data processing power as well as Level 1 and Level 2 trigger bandwidth is expected soon
- Planning ~10 hours access tomorrow
  - many different jobs, but nothing critical
    - no detector opening

Data Taking Efficiency

- Over last ~2 months the efficiency is quite stable
  - ~62%-65% per week
  - There are much better days (up to 85%) and runs (up to 90%)
- There is no single issue which affects the efficiency and this complicates its increase
- Currently major issues are
  - Fiber tracker requires readout crates redownload every ~20 minutes
  - Muon Level 2 trigger system hangs for inputs from PDTs and requires manual restart
  - Silicon HV trips and readout crates issues
  - Forward muon tracking detector loss of synhronization
  - Etc.
- Many of the issues are related to increase in trigger rates
  - do not have experts around to address some of the problems
    - working via E-mail, but it is not always efficient
- Looking for "work around" solutions
  - reseting/restarting system automatically in the known problematic cases
- Experts and shifters are concentrating on improving operating efficiency